ABSTRACT

Title of the abstract:

Insulin resistance and its correlation with severity of Coronary Artery Disease in patients without diabetes

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Objectives:

- **Primary Objective**

  To estimate insulin resistance and its correlation with severity of Coronary Artery Disease (CAD) in non diabetic adult patients aged 30 years and above undergoing Coronary angiography in a tertiary care hospital in India.

- **Secondary Objectives**

  a) To evaluate the clinical profile/risk factors in non diabetic CAD and to study their association with CAD.

  b) To assess regional body composition of fat vi**a DEXA SCAN (Dual energy X-ray absorptiometry)** and its correlation with severity of CAD in Indian Subjects.

Methods:

This single centre prospective observational study was conducted on consecutive non diabetic patients aged 30 years and above, admitted for coronary angiography in the ward of Department of Cardiology from August 2013 – Dec 2014. A detailed history and physical / blood examination pertaining to cardiovascular system was performed. After taking informed consent, estimation of fasting/postprandial blood sugars, HbA1C / Insulin assay was done and insulin resistance was assessed (via HOMA-IR and QUICKI) in all subjects prior to coronary angiogram. DEXA Scan was done to assess regional and total body composition of fat in all patients. Angiographic profile of all patients was then studied and severity of coronary artery disease was also calculated with help of Gensini score; the correlation of which was then assessed with presence of insulin resistance. The body composition via DEXA was also studied in between two groups.

Results:

This study showed that association between insulin resistance and coronary artery disease was statistically significant ($p<0.005$). In the study 66 CAD cases were further stratified into 3 groups on the basis of gensini scoring (A=1-14; B=15-32; C=≥33). The results of ROC plot showed that HOMA-IR has sensitivity of 85 % and specificity of 66 % for predicting group C CAD while QUICKI index has sensitivity of 87 % and specificity of 67.5 %. The results from multivariate analysis showed that in presence of other risk factors HOMAI-IR was not statistically significant although it increased the risk of CAD 1.2 times.

Regional fat analysis showed significantly low regional fat (Left arm; right arm; trunk; left leg and right leg; head; total fat) in CAD group but the percent fat trunk-leg ratio and trunk-limb ratio showed significantly higher values in CAD group .

Conclusion:

On the basis of results from this study it can be concluded that insulin resistance is associated with severity of coronary artery disease even in non diabetic population. Inta-abdominal subcutaneous fat association with risk of cardiovascular disease is a misconcept. Hence visceral fat should be given more importance in this context. Although Trunk-limb fat ratio using DEXA scan can also be used as a predictor for cardiovascular disease.

Keywords:

Insulin resistance, Coronary artery disease, Dual energy X-ray Absorptiometry